

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

### REMARKS

Claims 16-29 are pending and have been rejected under 35 U.S.C. §112. Claims 16-19, 21-25 and 27-29 have been rejected under 35 U.S.C. §102 and Claims 16, 20, 22 and 25-27 have been rejected under 35 U.S.C. §103. Claims 16, 19 and 21 are amended herein. Claims 16-29 remain for consideration. No new matter has been added.

Claims 16-29 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. For claim 16, the Examiner alleges that the term "part of said recess" is vague and indefinite. It is respectfully submitted that in customary claim drafting practice, the term "part" is frequently used and not found to be vague or indefinite. As you know the Manual of Patent Examining Procedure (MPEP) defines definiteness of claim language. For the convenience of the Examiner a portion of the relevant section of the MPEP follows. "Definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure . . . and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art." *MPEP 2173.02*. Without limiting the scope of the claims to which the present invention is drawn, Applicant refers to one embodiment illustrated in FIGS. 2-4 of the specification which shows a portion of the recess sealed by the cover. For example, the detailed description of the present application at page 10, lines 15-17 states "the cover element 5 has a cover portion 12, which has a width, which substantially corresponds to the width of the recess 8. The upper surface of the cover portion 12 is arranged to substantially form the end surface of the control rod blade in a mounted state." Since the width of the cover substantially corresponds to the width of the recess and the cover portion is arranged to substantially form the end surface of the control rod blade, it follows that in one embodiment, part of the recess is sealed by the cover. In addition, the specification at page 12, lines 22-25 states "the edges of the cover portions 12 are welded together with the internal surfaces of the legs 9. Thus based on the above cited sections of the specification and by inspection of FIGS. 2-4, it is clear that, in one embodiment, part of the recess is sealed by the cover at the legs. In view of the specification, one of ordinary skill in the relevant art would be apprised of the meaning of "part of said recess" and therefore of the scope of Claim 16. Claim 16 meets the requirements for clarity consistent with 35 U.S.C. 112, second paragraph. Accordingly,

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

Applicant respectfully requests reconsideration and withdrawal of the section 112 rejection of Claim 16 and the claims depending therefrom.

Claims 19 and 21 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly lacking proper antecedent basis. Claims 19 and 21, as amended herein, recite proper antecedent basis. Therefore, Applicant respectfully requests reconsideration and withdrawal of the section 112 rejections.

Amendments are proposed to Claim 16. Support for amended Claim 16 is found in the original disclosure, at least at page 10, lines 4-24; page 11, lines 22-29; and FIGS. 2-4. Thus no new matter is added.

Claims 16, 17, 21-25, 28 and 29 have been rejected under 35 U.S.C. §102(b) as allegedly being unpatentable over U.S. Patent Serial No. 5,276,718 to Ueda (hereinafter "Ueda").

The Examiner alleges that the language of Claim 16 reads on Ueda, namely: "a) "plurality of channels" reads on the channels formed by elongated elongated cladding or covering pipe 40; b) "free edge portion with a recess" reads of the top end of pipe 40; c) "cover element" reads on plug 43 at the top side of pipe 40; d) "profile element" reads on neutron absorbing member 41 covered by sleeve 44; e) "bottom surface in the recess" reads on the surface defined by metal wool 47. *Office Action at page 3.* In addition, the Examiner alleges that the term "such that" in the phrase "such that the profile element covers the outlets of said channels," connotes a condition arising as a direct consequence or result of the immediately preceding structure or step recited." *Office Action at page 3.* Thus, the Examiner alleges that Ueda "inherently meets this limitation because they meet the preceding structure of a "profile element arranged to be applied against a bottom surface in the recess." *Office Action at page 3.* The Examiner also alleges that the statement "at least one welding operation" in Claim 16 represents both: a) a statement of intended use; and b) a product-by-process limitation, and consequently do not distinguish the claimed structure over that of the reference. *Office Action at page 4.* Amended Claim 16 no longer recites the phrase "at least one welding operation," thus the Examiner's statements associated with the disputed phrase are moot.

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

Unlike the invention recited in amended Claim 16 of the present application, Ueda does not disclose, teach, or suggest a “cover element forming an external end surface of said control rod blade in a mounted state.” Instead, Ueda discloses “a multiplicity of neutron absorbing rods 32 are disposed in line in the sheath plate 33.” *Ueda at column 18, lines 13-15*. The sheath plate 33 is closed on upper and lower ends by upper structure member 35 and lower structure member 36, respectively. *Ueda at column 18, lines 16-18, and FIG. 18*. Ueda’s neutron absorbing rods 32 has “an elongated cladding or covering pipe 40” which is closed on opposing ends by plugs 43. *Ueda at column 18, lines 20-25*. Consequently, the entire rods 32 and the plugs 43 are completely enclosed inside the sheath plate 33. Thus, the plugs 43 are not a “cover element forming an external end surface of said control rod blade in a mounted state,” as recited in amended Claim 16.

Moreover, Ueda’s neutron absorbing members 41 and sleeve 44 are enclosed within the covering pipe 40 of the neutron absorbing rods 32. *Ueda at FIG. 20*. Thus the individual absorbing members do not disclose or inherently disclose that the “profile element covers the outlets of said channels,” as recited in amended Claim 16.

At least because Ueda does not disclose a “cover element forming an external end surface of said control rod blade in a mounted state” nor that the “profile element covers the outlets of said channels,” as is recited in amended Claim 16, it is respectfully submitted that Ueda can not anticipate that claim. For at least this reason, Claim 16 is allowable over Ueda. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the Ueda based section 102 rejection of Claim 16.

Since independent Claim 16, is deemed patentable over Ueda and Claims 17, 21-25, 28 and 29 depend directly or indirectly therefrom, they too are deemed patentable over Ueda.

Claims 16-19, 21, 22 and 27 have been rejected under 35 U.S.C. §102(b) as allegedly being unpatentable over U.S. Patent No. 4,888,150 to Vesterlund (hereinafter “Vesterlund”).

The Examiner alleges that Claim 16 “reads on Vesterlund as follows: a) “plurality of channels” reads on the channels 18b (see col. 3, lines 18+); b) “free edge portion with a recess” reads on ends away from supporting block 28 (see Fig. 2); c) “cover element” reads

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

on the cover formed by the weld material 37 (see Figs 4 and 5); d) "profile element" reads on bar 23 (see Figs. 4 and 5); e) "bottom surface in the recess" reads on the surface of body 21 that is adjacent bar 23 (see Figs. 4 and 5)." *Office Action at page 5*. In addition, the Examiner states that "as to the phrase, "such that the profile element covers the outlets of said channels," the term "such that" connotes a condition arising as a direct consequence or result of the immediately preceding structure or step recited." *Office Action at page 5*. Thus the Examiner alleges that "Vesterlund inherently meets this limitation because it meets the preceding structure of a "profile element arranged to be applied against a bottom surface in the recess." *Office Action at page 5*. Amended Claim 16 no longer recites the term "such that," thus the Examiner's statements associated with the disputed term are moot.

Unlike the invention recited in amended Claim 16 of the present application, Vesterlund does not disclose, teach, or suggest that the "profile element covers the outlets of said channels." Instead, Vesterlund discloses that "the bar 23 does not completely cover the orifices 34 of the channels in the bottom of the slot 22 as its width is smaller than the diameter of the channels . . . This leads to the creation of a gap 35 between the bar 23 and the side walls of the slot 22, where the channels are located." *Vesterlund at column 3, line 65 to column 4, line 3*. Since Vesterlund's bar 23 does not cover the channels, Vesterlund does not disclose the "profile element covers the outlets of said channels," as recited in amended Claim 16.

Moreover, Vesterlund does, not disclose, teach or suggest a "cover element, said cover element being sealing attached to said free edge portion, said cover element forming an external end surface of said control rod blade in a mounted state" as recited in amended Claim 16. Vesterlund discloses no cover element at all. Instead, Vesterlund discloses that "the side walls of the slot 22, which are straight from the beginning, are pressed against the bar 23 and welded together at the end surfaces while forming a gas-tight edge 31." *Vesterlund at column 4, lines 30-33*. Once Vesterlund's side walls are pressed against the bar 23 there is no free edge portion and consequently no free edge portion to which any "cover element," as recited in Claim 16, is sealingly attached to. In addition, Vesterlund's weld joint can not possibly be defined as a "cover element," as recited in amended Claim 16, at least because the weld joint has no "mounted state" as does the "cover element" recited in amended Claim 16.

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

At least because Vesterlund does not disclose that a "profile element covers the outlets of said channels" nor a "cover element, said cover element being sealing attached to said free edge portion in the mounted state," as is recited in amended Claim 16, it is respectfully submitted that Vesterlund can not anticipate that claim. For at least this reason, Claim 16 is allowable over Vesterlund. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the Vesterlund based section 102 rejection of Claim 16.

Since independent Claim 16, is deemed patentable over Vesterlund and Claims 17-19, 21, 22 and 27 depend directly or indirectly therefrom, they too are deemed patentable over Vesterlund.

Claims 16, 20, 22 and 25-27 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Research Disclosure No. 33925/92 (hereinafter "RD '92) in view of Ueda.

The Examiner alleges that RD '92 discloses all the limitations of Claim 16 except for the profile element. *Office Action at page 7.* The Examiner alleges Claim 16 reads on RD '92 as follows: "a) "free edge portion with a recess" reads on any portion of the blade away from fixed end where a coupling rod is located; b) "plurality of outlets arranged to receive an absorber material" reads on the plurality channels; c) "cover element" reads on strip 4." *Office Action at page 7.* The Examiner then alleges that Ueda teaches the "use of a profile element 3b abutting a cover element 5 (see Fig. 34). The element 3b acts to prevent the B<sub>4</sub>C powder from dropping from the accommodating holes 2a (see col. 2, lines 21+)" and that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as discussed by RD '92, by the teaching of Ueda, to include a profile element, to gain the advantages thereof (i.e., prevent spillage of absorber powder from the channels), because such modification is no more than the use of a well known expedient within the nuclear art. *Office Action at page 7.*

RD '92 is merely seen to disclose a control rod including absorber blades (1) having a "longitudinal semicircular groove (3) . . . arranged at the orifices of the channels (2)" and a "strip (4) . . . arranged in the groove providing a longitudinal space (5) inside the strip." RD '92 page 537, section 33925. Nowhere does RD '92 disclose a profile element, as recited in

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

amended Claim 16 of the present application. Furthermore, the semicircular groove (3) causes the orifices of the channels (2) to be located at a relatively large distance from an outer end surface of the absorber blade (1). Thus the depth of the semicircular groove (3) makes it difficult to position the absorber material near the outer end surface of the absorber blade (1). Use of a profile element in the RD '92 absorber blade (1), would make it even more difficult to position the absorber material near the outer end surface of the absorber blade (1), because of the thickness of such a profile element would cause the absorber material to be positioned even further from the outer end surface of the absorber blade. Consequently, RD '92 teaches away from the use of a profile element, as recited in amended Claim 16.

Ueda is merely seen to disclose a "neutron absorber 3b and the stainless steel member 5 are placed in the space 2b before a pair of plate portions 2d confronting each other in the opening portion 2c are bent inward so as to be closed by welding." Ueda at column 2, lines 30-35. Ueda's neutron absorber 3b is also not a "profile element" as recited in amended Claim 16. Accordingly, neither RD '92 nor Ueda individually disclose, teach or suggest a "profile element" as recited in amended Claim 16. Therefore, since neither RD '92 nor Ueda disclose, teach or suggest a "profile element," any combination of RD '92 and Ueda further fails to disclose, teach or suggest a "profile element," as recited in amended Claim 16.

Moreover, because, as set forth above, RD '92 teaches away from the invention claimed in the instant application, the reference cannot properly form part of a section 103 rejection. In addition, one skilled in the relevant art would not look to combine the teachings of RD '92 with those of Ueda because there is no need to modify RD '92 to add an ineffective profile element.

Even if somehow RD '92 and Ueda are combined as suggested by the Examiner, the proposed combination would merely disclose a longitudinal semicircular groove arranged at the orifices of the channels and a strip arranged in the groove (RD '92) and an ineffective neutron absorber (Ueda). Moreover, since Ueda discloses no profile element and RD '92 teaches away from a "profile element," neither reference can possibly disclose a "profile element being disposed against a bottom surface defined by the recess; and said profile element covers the outlet of said channels," as recited in amended Claim 16. Therefore, even if one skilled in the art would somehow combine RD '92 and Ueda, a point which is not

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

admitted, the proposed combination would not expressly or implicitly disclose, teach, or suggest the subject matter of amended Claim 16.

Consequently, because not all of the recitations of Claim 16 are taught by the cited references, individually or in combination, and because the Examiner has improperly combined RD '92 and Ueda, Claim 16 is necessarily non-obvious, and Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 16.

Claim 20 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over either one of Ueda or Vesterlund. For Claim 20, the Examiner applies the same grounds for rejection as those stated above for section 103 rejection of Claims 16, 20, 22 and 25-27 based on RD '92 in view of Ueda. Based on the above stated remarks, the Applicant disagrees.

Since independent Claim 16, as now written, is deemed patentable over RD '92 and Ueda and Claims 20, 22 and 25-27 depend directly from and further limit independent Claim 16, Claims 20, 22 and 25-27 are also deemed patentable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejections.

Applicant believes that the foregoing remarks are fully responsive to the Office Action and that the claims herein are allowable. An early action to that effect is earnestly solicited.

Should the Examiner have any questions regarding the present application, Applicant respectfully requests that the Examiner contact Applicant's representative at the phone number listed below.

Please charge the \$120.00 fee for a one-month extension of time to Deposit Account No. 503342 maintained by Applicant's attorneys. No other fee is believed due with the filing of this Amendment and Reply. However, if a fee is due, Applicant authorizes the payment of

Appl. No. 10/575,975  
Amdt. dated September 10, 2007  
Reply to Office Action of May 8, 2007

any additional charges that may be necessary to maintain the pendency of the present application to the undersigned attorney's Deposit Account No. 503342.

Respectfully submitted,

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